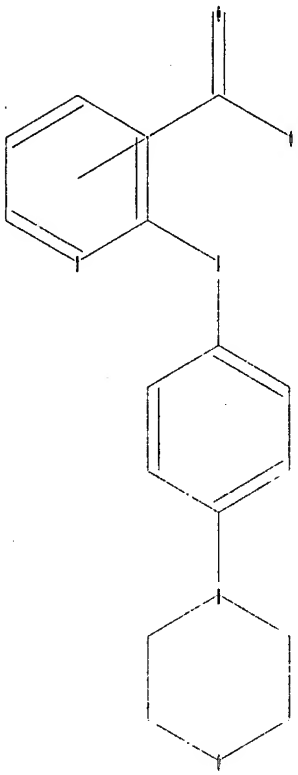
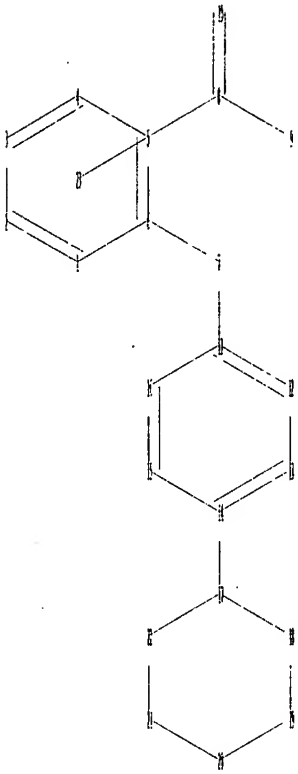




broad search

chain nodes :
7 8 9 10
ring nodes :
1 2 3 4 5 6 11 12 13 14 15 16 17 18 19 20 21 22
chain bonds :
6-7 7-11 8-10 8-9 14-17
ring bonds :
1-2 1-6 2-3 3-4 4-5 5-6 11-12 11-16 12-13 13-14 14-15 15-16 17-18
17-22 18-19 19-20 20-21 21-22
exact/norm bonds :
6-7 7-11 8-10 8-9 14-17 17-18 17-22 18-19 19-20 20-21 21-22
normalized bonds :
1-2 1-6 2-3 3-4 4-5 5-6 11-12 11-16 12-13 13-14 14-15 15-16

Match level :
1:Atom 2:Atom 3:Atom 4:Atom 5:Atom 6:Atom 7:CLASS 8:CLASS 9:CLASS 10:CLASS
11:Atom 12:Atom 13:Atom 14:Atom 15:Atom 16:Atom 17:Atom 18:Atom 19:Atom
20:Atom 21:Atom 22:Atom 23:Atom

L5 STRUCTURE UPLOADED

=> d
L5 HAS NO ANSWERS
L5 STR

* STRUCTURE DIAGRAM TOO LARGE FOR DISPLAY - AVAILABLE VIA OFFLINE PRINT *

Structure attributes must be viewed using STN Express query preparation.

```
=> s l5 full
FULL SEARCH INITIATED 15:15:16 FILE 'REGISTRY'
FULL SCREEN SEARCH COMPLETED -     1740 TO ITERATE

100.0% PROCESSED     1740 ITERATIONS                          11 ANSWERS
SEARCH TIME: 00.00.02

L6            11 SEA SSS FUL L5

=> fil caplus
COST IN U.S. DOLLARS                          SINCE FILE      TOTAL
                                                   ENTRY    SESSION
FULL ESTIMATED COST                               501.26     501.47

FILE 'CAPLUS' ENTERED AT 15:15:31 ON 13 NOV 2006
USE IS SUBJECT TO THE TERMS OF YOUR STN CUSTOMER AGREEMENT.
PLEASE SEE "HELP USAGETERMS" FOR DETAILS.
COPYRIGHT (C) 2006 AMERICAN CHEMICAL SOCIETY (ACS)
```



```
FILE COVERS 1907 - 13 Nov 2006  VOL 145 ISS 21
FILE LAST UPDATED: 12 Nov 2006  (20061112/ED)

Effective October 17, 2005, revised CAS Information Use Policies apply.
They are available for your review at:

http://www.cas.org/infopolicy.html

=> s l6
L7             4 L6

=> d ibib abs hitstr 1-4
```

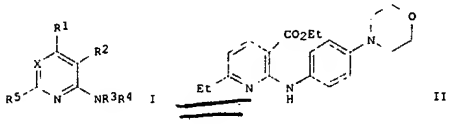
L7 ANSWER 1 OF 4 CAPLUS COPYRIGHT 2006 ACS on STN
ACCESSION NUMBER: 2006:608665 CAPLUS
DOCUMENT NUMBER: 145:62920
TITLE: Preparation of pyridines and pyrimidines as inhibitors of HCV RNA polymerases for treating liver diseases
INVENTOR(S): Wobbe, C. Richard
PATENT ASSIGNEE(S): Xtl Biopharmaceuticals Inc., USA
SOURCE: PCT Int. Appl., 42 pp.
CODEN: PIXXD2
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2006065590	A2	20060622	WO 2005-US44206	20051205
WO 2006065590	A3	20060921		

W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KM, KN, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, LY, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NG, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SM, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW
RW: AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LT, LU, LV, MC, NL, PL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG, BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM

PRIORITY APPLN. INFO.: US 2004-637108P P 20041216

OTHER SOURCE(S): MARPAT 145:62920
GI



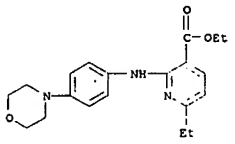
I II

AB Title compds. I [wherein X = CH or N; R1, R2 = H, (un)substituted alkyl, (hetero)aryl, etc.; R3, R4 = H, (un)substituted alkyl, (hetero)aryl, etc.; R3 and R4 may link together to form ring; R5 = halo, (un)substituted alkyl, amino, etc., with limitations] and pharmaceutically acceptable salts thereof, such as II, were prepared as antiviral agents. I showed 93-99% inhibition of HCV RNA polymerase at 10 μg/mL, and had extremely low cytotoxicity with CC50 of >100 μg/mL in a MTT assay using Hep G2 cells. The invented compds. are useful for the treatment of liver diseases.

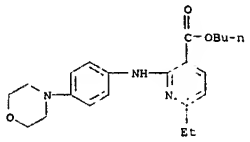
L7 ANSWER 1 OF 4 CAPLUS COPYRIGHT 2006 ACS on STN (Continued)

IT 891844-56-7P 891844-57-8P 891844-58-9P
891844-59-0P 891844-61-4P 891844-62-5P
RL: ADV (Adverse effect, including toxicity); PAC (Pharmacological activity); SPN (Synthetic preparation); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)
(drug candidate; preparation of pyridines and pyrimidines as inhibitors of HCV RNA polymerases for treating liver diseases)

RN 891844-56-7 CAPLUS
CN 3-Pyridinecarboxylic acid, 6-ethyl-2-[[4-(4-morpholinyl)phenyl]amino]-, ethyl ester (9CI) (CA INDEX NAME)

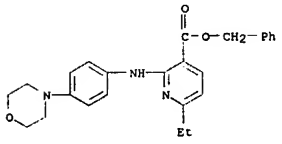


RN 891844-57-8 CAPLUS
CN 3-Pyridinecarboxylic acid, 6-ethyl-2-[[4-(4-morpholinyl)phenyl]amino]-, butyl ester (9CI) (CA INDEX NAME)

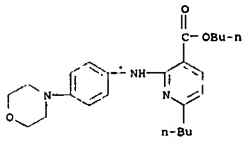


RN 891844-58-9 CAPLUS
CN 3-Pyridinecarboxylic acid, 6-ethyl-2-[[4-(4-morpholinyl)phenyl]amino]-, phenylmethyl ester (9CI) (CA INDEX NAME)

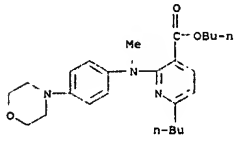
L7 ANSWER 1 OF 4 CAPLUS COPYRIGHT 2006 ACS on STN (Continued)



RN 891844-59-0 CAPLUS
CN 3-Pyridinecarboxylic acid, 6-butyl-2-[[4-(4-morpholinyl)phenyl]amino]-, butyl ester (9CI) (CA INDEX NAME)

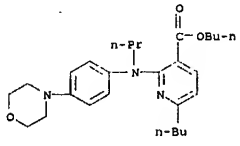


RN 891844-61-4 CAPLUS
CN 3-Pyridinecarboxylic acid, 6-butyl-2-[methyl[4-(4-morpholinyl)phenyl]amino]-, butyl ester (9CI) (CA INDEX NAME)



RN 891844-62-5 CAPLUS
CN 3-Pyridinecarboxylic acid, 6-butyl-2-[[4-(4-morpholinyl)phenyl]propylamino]-, butyl ester (9CI) (CA INDEX NAME)

L7 ANSWER 1 OF 4 CAPLUS COPYRIGHT 2006 ACS on STN (Continued)

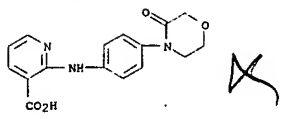


L7 ANSWER 2 OF 4 CAPLUS COPYRIGHT 2006 ACS on STN
ACCESSION NUMBER: 2006:388372 CAPLUS
DOCUMENT NUMBER: 144:412520
TITLE: Preparation of 4-(aminophenyl)morpholinone derivatives for pharmaceutical usage
INVENTOR(S): Marhold, Albrecht; Ebenbeck, Wolfgang
PATENT ASSIGNEE(S): Lanxess Deutschland G.m.b.H., Germany
SOURCE: PCT Int. Appl., 22 pp.
CODEN: PIXXD2
DOCUMENT TYPE: Patent
LANGUAGE: German
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

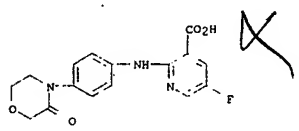
PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2006042634	A1	20060427	WO 2005-EP10625	20051001
W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KM, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, LY, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NG, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SM, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW				
RW: AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LT, LU, LV, MC, NL, PL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG, BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM				
DE 102004050283	A1	20060427	DE 2004-102004050283	20041015
PRIORITY APPLN. INFO.:			DE 2004-102004050283A	20041015

OTHER SOURCE(S): MARPAT 144:412520
AB 4-(Aminophenyl)morpholinone derivs. [e.g., 6-methyl-2-[4-(3-oxomorpholin-4-yl)phenylamino]nicotinic acid, m.p. 242-244°] are prepared [e.g., by the condensation of 2-chloro-6-methylnicotinic acid with 4-(4-aminophenyl)-3-morpholinone] which are useful as pharmaceuticals (no data).
IT 883867-04-7P 883867-05-8P 883867-06-9P
RL: SPN (Synthetic preparation); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)
(preparation of 4-(aminophenyl)morpholinone derivs. for pharmaceutical usage)
RN 883867-04-7 CAPLUS
CN 3-Pyridinecarboxylic acid, 2-[[4-(3-oxo-4-morpholinyl)phenyl]amino]- (9CI)
(CA INDEX NAME)

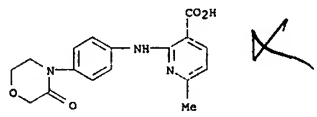
L7 ANSWER 2 OF 4 CAPLUS COPYRIGHT 2006 ACS on STN (Continued)



RN 883867-05-8 CAPLUS
CN 3-Pyridinecarboxylic acid, 5-fluoro-2-[[4-(3-oxo-4-morpholinyl)phenyl]amino]- (9CI) (CA INDEX NAME)



RN 883867-06-9 CAPLUS
CN 3-Pyridinecarboxylic acid, 6-methyl-2-[[4-(3-oxo-4-morpholinyl)phenyl]amino]- (9CI) (CA INDEX NAME)



REFERENCE COUNT: 3 THERE ARE 3 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

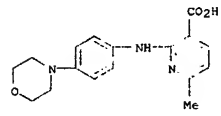
L7 ANSWER 3 OF 4 CAPLUS COPYRIGHT 2006 ACS on STN
ACCESSION NUMBER: 2004:333713 CAPLUS
DOCUMENT NUMBER: 140:339335
TITLE: Preparation of 6-methyl-2-(4-morpholinoanilino)nicotinic acid as anti-HCV agent
INVENTOR(S): Kim, Jongwoo; Lee, Sangwook; Lee, Geunhyung; Han, Jaejin; Park, Sangjin; Park, Eulyong; Shin, Joongchul
PATENT ASSIGNEE(S): B & C Biopharm Co., Ltd., S. Korea
SOURCE: PCT Int. Appl., 18 pp.
CODEN: PIXXD2
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PCT - Instant

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2004033450	A1	20040422	WO 2003-KR2034	20031002
W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW				
RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG				
KR 2004033099	A	20040421	KR 2002-61994	20021011
CA 2499642	AA	20040422	CA 2003-2499642	20031002
AU 2003265122	A1	20040504	AU 2003-265122	20031002
EP 1549642	A1	20050706	EP 2003-807998	20031002
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR, BG, CZ, EE, HU, SK				
BR 2003014478	A	20050726	BR 2003-14478	20031002
CN 1694880	A	20051109	CN 2003-80100748	20031002
JP 2006506358	T2	20060223	JP 2004-542896	20031002
PRIORITY APPLN. INFO.:			KR 2002-61994 A	20021011
			WO 2003-KR2034 W	20031002

AB The present invention relates to 6-methylpyridine derivative useful as an antiviral agent. More particularly, the present invention relates to the title compound (I) as novel 6-methylpyridine derivative which has an excellent inhibitory effect on replication of Hepatitis C virus (HCV), and thus can be advantageously used as a therapeutic or prophylactic agent of hepatitis C. The title compound I was prepared in 89% yield by reacting 2-chloro-6-methylnicotinic acid with 4-morpholinoaniline in the presence of pyridine in CHCl3 at 60°C for 5 days. The pharmaceutical composition comprising the compound I as an active ingredient is claimed.
IT 681161-09-1P, 6-Methyl-2-(4-morpholinoanilino)nicotinic acid
RL: PAC (Pharmacological activity); SPN (Synthetic preparation); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)
(preparation of 6-methyl-2-(4-morpholinoanilino)nicotinic acid as anti-HCV agent)
RN 681161-09-1 CAPLUS

L7 ANSWER 3 OF 4 CAPLUS COPYRIGHT 2006 ACS on STN (Continued)
CN 3-Pyridinecarboxylic acid, 6-methyl-2-[[4-(4-morpholinyl)phenyl]amino]- (9CI) (CA INDEX NAME)



REFERENCE COUNT: 4 THERE ARE 4 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

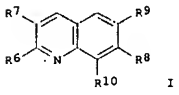
L7 ANSWER 4 OF 4 CAPLUS COPYRIGHT 2006 ACS on STN
ACCESSION NUMBER: 2002:793832 CAPLUS
DOCUMENT NUMBER: 137:310824
TITLE: Preparation of quinoline inhibitors of hYAK1 and hYAK3 kinases
INVENTOR(S): Bryan, Deborah L.; Burgess, Joelle L.; Callahan, James F.
PATENT ASSIGNEE(S): Smithkline Beecham Corporation, USA
SOURCE: PCT Int. Appl., 53 pp.
CODEN: PIXXD2
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

4/4/02

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2002081728	A2	20021017	WO 2002-US10657	20020404
WO 2002081728	A3	20021121		
W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, OM, PH, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZM, ZW				
RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG				
AU 2002256085	A1	20021021	AU 2002-256085	20020404
EP 1372654	A2	20040102	EP 2002-725526	20020404
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR				
JP 2004526756	T2	20040902	JP 2002-580090	20020404
US 2005043352	A1	20050224	US 2003-474084	20031006
US 7087758	B2	20060808		
PRIORITY APPLN. INFO.:			US 2001-282229P	P 20010406
			WO 2002-US10657	W 20020404

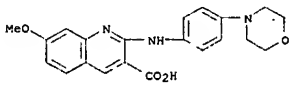
OTHER SOURCE(S): MARPAT 137:310824
GI

4/6/01



I

L7 ANSWER 4 OF 4 CAPLUS COPYRIGHT 2006 ACS on STN (Continued)
AB The title compds. [I; R6 = NHalkyl, NHcycloalkyl, NHaryl, etc.; R7 = CO2H, CONH2, CHNOH, etc.; R8 = H, OH, alkyl, etc.; R9 = H, alkyl, cycloalkyl, etc.; R8 and R9 can form a 5-7 membered ring comprising heteroatoms selected from O, N, and S; R10 = H, halo], useful in the treatment of diseases in which an excessive amount of either hYAK1 and hYAK3 kinases is a factor, were prepared Thus, reacting 2-chloro-7-methoxyquinoline-3-carboxylic acid with 3-chloroaniline in xylene afforded I [R6 = 3-ClC6H4NH; R7 = CO2H; R8 = OMe; R9, R10 = H]. The compds. I showed IC50 of 0.01-10 μM, and 0.03-10 μM against hYAK1 and hYAK3, resp.
IT 470702-06-8P
RL: PAC (Pharmacological activity); SPN (Synthetic preparation); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)
(preparation of quinoline inhibitors of hYAK1 and hYAK3 kinases for treating anemia)
RN 470702-06-8 CAPLUS
CN 3-Quinolinecarboxylic acid, 7-methoxy-2-[[4-(4-morpholinyl)phenyl]amino]- (9CI) (CA INDEX NAME)



different treatments